

What is claimed is:

1. "INDICATIVE SENSOR FOR STOCK CONTROL",
characterized by the fact of comprising a sensor (1) featuring:
a hollow tube (2) with a first open end (3) and
a second closed end (4);

a slidable piston (5) inside the tube (2);

a fluid (O) or a spring (M) contained in a
compartment (C1), inside the tube (2), comprised between the
piston (5) and the end (4);

a fluid (H) contained in a compartment (C2),
inside the tube (2), comprised between the piston (5) and the end
(3);

media to provide at least one indication of the
occurrence of a temperature rise in the ambient in which the
sensor (1) is immersed.

2. "SENSOR", according to claim 1, characterized
by the fact that one of the indications of the occurrence of a
temperature rise comprises the irreversible motion of piston (5)
in a single direction inside the tube (2).

3. "SENSOR", according to claim 1 or 2,
characterized by the fact that the fluid (H) is frozen to the
solid state.

4. "SENSOR", according to claim 3, characterized
by the fact that the fluid (H) expands and expels a releasable cap
(17) positioned at the end (3).

5. "SENSOR", according to claim 1, 2, 3 or 4,
characterized by the fact that the fluid (O) is gaseous.

6. "SENSOR", according to claim 1, 2, 3, 4 or 5,
characterized by the fact that the fluid (O) or a spring (M) is

compressed, under pressure, exerting a force over the piston (5) in the sense of pushing it towards the end (3).

7. "SENSOR", according to claim 3, 4, 5 or 6, characterized by the fact that the fluid (H), frozen, prevents the piston (5) from moving.

8. "SENSOR", according to claim 1, 2, 3, 4, 5, 6 or 7, characterized by the fact that said temperature rise implies the thawing of a product along to which is placed said sensor (1).

9. "SENSOR", according to claim 6, 7 or 8, characterized by the fact that the said temperature rise implies the thawing of the fluid (H) which is liquefied and leaks outside of said tube (2) liberating the movement of the piston (5) inside tube (2).

10. "SENSOR", according to claim 1, 2, 3, 5, 6, 7, 8 or 9, characterized by the fact that the fluid (H) is non-toxic.

11. "SENSOR", according to claim 1, 2, 3, 5, 6, 7, 8, 9 or 10, characterized by the fact that the tube (2) is preferably made of rigid material, being totally transparent, and in one variant, said tube (2) is translucent or alternatively opaque but has at least one transparent area.

12. "SENSOR", according to claim 3, 4, 5, 6, 7, 8, 9, 10 or 11, characterized by the fact that there is an engraving (6) on the tube (2), and said engraving coincides with the position of the piston (5) inside the tube (2) when the fluid (H) is perfectly frozen.

13. "SENSOR", according to claim 12, characterized by the fact that when the position of piston (5) inside the tube (2) does not coincide with that of the engraving

(6) this constitutes visual indication that the product along to which said sensor (1) is placed has been submitted to a partial or total thawing.

14. "SENSOR", according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13, characterized by the fact that one constructive variant of the sensor (1) comprises the addition, near the compartment (C2) of the tube (2), of movable laminar petals (7).

15. "SENSOR", according to claim 14, characterized by the fact that said petals (7) are in the closed position when the fluid (H) is perfectly frozen, constituting visual indication that the product along to which said sensor (1) is placed is also perfectly frozen.

16. "SENSOR", according to claim 14 or 15 characterized by the fact that said petals (7) are in an open position when the fluid (H) is partially or totally defrost, constituting visual indication that the product along to which said sensor (1) is placed has also been subjected to partial or total thawing.

17. "SENSOR", according to claim 14, 15 or 16 characterized by the fact that the petals (7) and said piston (5) feature colors that are contrasting among each other.

18. "SENSOR", according to claim 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17, characterized by the fact that jelly, salts and other compatible substances that modify the temperature of the natural freezing/thawing point of fluid (H) are added to said fluid (H).

19. "SENSOR", according to claim 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 or 18 characterized by the

fact that is added to fluid (H) a granulated solid material, comprised by tips/threads, that promotes the beginning of the nucleation of fluid (H) and increases the visibility of the sensor's indication.

20. "SENSOR", according to claim 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 or 19, characterized by the fact that is added to fluid (H) a tensoactive material that facilitates the movement of ice crystal of the sensor after the occurrence of partial thawing and insures a good flow of the fluid (H) when already in the liquid state, completely defrost.

21. "SENSOR", according to claim 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 or 21, characterized by the fact that there is a thermal insulation between the sensor (1) and the product along to which said sensor (1) is placed.

22. "SENSOR", according to claim 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 or 21, characterized by the fact that the body (2) features media to connect the cap (17) to the same body (2) even if said cap (17) is expelled from the end (3).

23. "SENSOR", according to claim 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 or 21, characterized by the fact that said open end (3) of the tube (2) is integrated to a collecting receptor (10) that receives the fluid (H) when this is thaw.

24. "SENSOR", according to claim 23, characterized by the fact that said collecting receptor (10) has its internal wall covered by an absorbent material (15) that absorbs the fluid (H) when this is liquefied.

25. "SENSOR", according to claim 24, characterized by the fact that said material (15) reacts

chemically with the liquefied fluid (H) and presents a contrasting color that enhances the viewing of the sensor (1) indication when there is thawing.

26. "SENSOR", according to claim 23, 24 or 25 characterized by the fact that alternatively to said cap (17), there is a thin membrane (16), that can be ruptured, closing the end (3).

27. "SENSOR", according to any of the preceding claims, characterized by the fact that there is a salient (11) inside the tube (2), in the region of the compartment (C2), that anchors the frozen fluid (H).

28. "SENSOR", according to any of the preceding claims, characterized by the fact that there is a shrivel (12) in higher relief on the internal wall of the compartment (C2), that anchors the frozen fluid (H), being said shrivel (12) constituted by narrow bars, triangular teeth and polygonal shapes.

29. "SENSOR", according to any of the preceding claims, characterized by the fact that there is a concavity (13) inside the tube (2), in the region of the compartment (C2), and said concavity anchors the frozen fluid (H) and limits the course of movement of the piston (5).

30. "SENSOR", according to any of the preceding claims, characterized by the fact that there is a course limiter (18) inside the tube (2), in the region of the compartment (C1), that limits the course of movement of the piston (5).

31. "SENSOR", according to any of the preceding claims, characterized by the fact that are added to the fluid (H) dyes and pigments that increase the viewing of said fluid (H).

32. "SENSOR", according to any of the preceding claims, characterized by the fact that the piston (5) presents at least one horizontal stripe painted or mounted, or alternatively signals written on the sides and on at least one face of said piston (5).

33. "SENSOR", according to any of the preceding claims, characterized by the fact that the piston (5) presents at least one of its faces with a convex shape, or alternatively a concave shape.

34. "SENSOR", according to any of the preceding claims, characterized by the fact that the piston (5) presents a three-dimensional object or physical shape (23) applied to at least one face of the same piston.

35. "SENSOR", according to claim 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 or 34, characterized by the fact that the placement of the sensor (1) along the product comprises:

placing at least one sensor (1) in an external package, on the outside of the product;

alternatively, insert vertically at least one sensor (1) in the product;

alternatively, insert horizontally at least one sensor (1) in the product;

alternatively, make the sensor (1) directly integrated to a package of the "blister" kind that involves the product, so that said tube (2) is an integral and undissociable part of said package;

alternatively, placing a thermal insulation between the sensor and the monitored product, being said thermal

insulation set in the form of a vacuum layer, an air layer, a water layer, some other liquid layer or a layer of other insulating materials placed between said sensor tube 2 and the food product to be monitored.

36. "SENSOR", according to any of the previous claims, characterized by the fact that a variant of said sensor comprises only the compartment (C2), eliminating the compartment (C1) on tube (2), with the sliding piston (5) positioned along the end (4), with one spring (M'), relaxed, placed into compartment (C2), with one of its ends attached to the sliding piston (5) and the other end attached to the cap (17).

37. "SENSOR", according to claim 36, characterized by the fact that when the fluid (H) thaws, the spring (M'), which is relaxed, pulls the sliding piston (5) towards the end (3) of tube (2), aiding on the ejection of the fluid (H) from compartment (C2).

38. "SENSOR", according to claims 36 or 37, characterized by the fact that when said sensor features a spring (M, M'), an end (4) optionally features a passing hole (25) to allow the entrance of air into compartment (C1) upon the movement of the sliding piston (5).

39. "SENSOR", according to any of the previous claims, characterized by the fact that the body (2) features spaced markings that constitute a scale (20), in the region near the position of the piston (5).

40. "SENSOR", according to any of the previous claims, characterized by the fact that the present indicative sensor for storage control is not limited to the use with food, and can be used along with any product which freezing one chooses

to monitor, for example, blood bags, medicine, resins used in manufacture processes and similar uses.